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### The Effect of Self-Licensing on Food Choice

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MONTCLAIR STATE UNIVERSITY

The Effect of Self-Licensing on Food Choice

by

James Force

A Master's Thesis Submitted to the Faculty of

Montclair State University

In Partial Fulfillment of the Requirements

For the Degree of


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EFFECT OF SELF-LICENSING  
ON FOOD CHOICE

A THESIS

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Montclair, NJ

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## Abstract

Research has shown that individuals will license indulgent or immoral behavior after engaging in or recalling moral behavior. The purpose of this experiment was to determine whether or not individuals would do this when selecting food items.

Participants completed one of two writing tasks, one of which was designed to elicit a licensing effect, before choosing a food item. Afterward, participants completed a scale to determine their restraint type. It was hypothesized that individuals who recalled moral behavior would allow themselves to indulge and choose an unhealthy, high calorie food item over a healthy, low calorie food item. It was also hypothesized that individuals who were attempting to restrict their caloric intake (and were classified as restrained eaters as a result) were more likely to be vulnerable than the average person to the licensing effect. No significant effects of either recalling moral behavior or restraint were found. The potential reasons for these results are discussed, as are ideas for future research.

### Effect of Self-Licensing on Food Choice

It is estimated that about two-thirds of adults in the U.S. are overweight, with about a third of the population being obese (Odgen, Carroll, Kit & Flegal, 2014). Many individuals diet to lose weight, but have trouble succeeding, with about a third of individuals who lose significant weight gaining it back a year later (Weiss, Galuska, Kettel Khan, Gillespie & Serdula, 2007). One potential reason dieters may have a difficult time restricting their calorie intake could be due to the licensing effect, a psychological phenomenon that increases the chance of in an individual making a more indulgent or selfish choice after they act morally or make a responsible decision (Merritt, Effron & Monin, 2010). This study attempted to determine whether or not females license themselves to make unhealthy food choices after recalling past moral behavior they have performed. Additionally, it looked at whether or not women attempting to lose weight, particularly those classified as restrained eaters, were more likely to license indulgent eating.

#### **The Licensing Effect**

The licensing effect (also referred to as self-licensing) is described by Khan and Dhar (2006) as a “non-conscious process” that results in the choice of a more hedonic option increasing after a prior virtuous act. The licensing effect has been found to affect decision-making in a variety of situations. The licensing effect was initially discovered in studies that examined prejudice. A study by Monin and Miller (2001) evaluated the hypothesis that individuals who were given the opportunity to establish themselves as not being sexist would be more likely to engage in sexist behavior afterwards. In this study,

all participants had the opportunity to rate whether or not a stereotypically male job was more appropriate for one gender or another. However, before doing so, half of the participants were asked whether or not they agreed or disagreed with blatantly sexist statements about women, while the other half were given more ambiguous, non-sexist statements to agree or disagree with. It was found that the individuals who were given the chance to disagree with the blatantly sexist statements were subsequently more likely to rate the stereotypical male job as being more appropriate for men than those who responded to the more ambiguous, non-sexist statements. Monin and Miller theorized that the participants that responded to the sexist statements felt they had established themselves as “non-sexist” and as a result, could rate the job that followed those statements as being better for men. These findings have been supported by other studies that examined self-licensing and bias. Effron, Cameron and Monin (2009) found that individuals who indicated they would vote for Barack Obama in the 2008 Presidential Election subsequently licensed themselves to decide that in a hypothetical job scenario, a police station in a predominately white town should favor hiring a white officer over a black officer, suggesting that once participants felt they had established themselves as not prejudiced towards blacks, they felt they could make a biased decision afterward. In both of the previously discussed studies, once participants performed actions that established themselves as nonsexist or nonracist, they subsequently engaged in prejudiced behavior, even when their prior nonsexist or nonracist actions were not that extraordinary or unexpected, (e.g., disagreeing with statements that were blatantly sexist and offensive to women).

Although the licensing effect was initially discovered in studies that looked into bias, research has expanded it to cover the domain of moral and prosocial behavior. Various studies have found that individuals who engage in moral or prosocial behavior are more likely to engage in selfish or immoral behavior afterward. In a study that examined the impact of one prosocial behavior on another subsequent behavior, the study found that individuals who volunteered to help a foreign aid student with their course material were less likely to donate money earned from participation in the study to a local charity afterward (Khan & Dhar, 2006, Study 3). Other studies have found that engaging in an altruistic act in the present is not necessary for the licensing effect to appear. If an individual simply recalls past moral behavior he or she has performed, they are less likely to engage in prosocial behavior (e.g., donating money to charity) afterward, while recalling immoral behavior results in the opposite, with individuals becoming more likely to donate to charity (Jordan, Mullin & Murnighan, 2011, Study 2). Additionally, individuals who recall past moral behavior may subsequently participate in clearly immoral behavior, such as cheating on a test (Jordan et al., 2011, Study 3). One other interesting aspect of self-licensing discovered in this study is that only recalled moral behavior resulted in the licensing effect occurring: individuals who recalled good or bad nonmoral behavior (e.g., succeeding or failing to achieve an important goal) did not self-license afterward. Also, recalling moral behavior performed by others does not result in a licensing effect, which suggests that the effect may be related to one's own sense of self.

Another domain the licensing effect plays a role in is item choice. It has been shown that individuals who engage in some form of altruistic behavior are likely to license an indulgent item choice afterward. Individuals in a two-part study who were

given an opportunity to perform some sort of virtuous act (e.g., volunteering to do community service in a hypothetical scenario) were more likely to make a “hedonic” consumer choice by choosing to purchase luxury items such as designer jeans or expensive sunglasses over more utilitarian items in another subsequent hypothetical scenario (Khan & Dhar, 2006).

### **Why Do We Self-License?**

There are a number of theories one could come up with to explain why we license ourselves to engage in selfish or indulgent behavior. Although there is no definitive explanation for why we self-license, the number of plausible reasons as to why we do so has been narrowed down, with some alternative explanations being disproven in the process. One factor that does not account for the licensing effect is positive mood. It could be theorized that if participants are performing good actions before licensing indulgence or immorality, perhaps increased affect as a result of doing something good is behind the licensing effect. However, in their studies on how prosocial behavior results in self-licensing, Khan and Dhar (2006) also measured the mood of participants. There was no significant difference in the average mood scores of the two groups (license and control) suggesting that performing an altruistic task (in this instance, donating to charity) did not result in increased mood, thus ruling it out as a reason for the appearance of the licensing effect.

Another reason for the licensing effect that appears to have been discounted is loss of self-control resources. According to ego-depletion theory (Baumeister et al.,

2000), self-control is a limited resource, and if it is depleted, it may be more difficult to exercise self-control afterward. However, as noted by Khan and Dhar (2006), many of the tasks that participants perform in self-licensing studies are very simple and unlikely to require much self-control. Some licensing studies involve hypothetical scenarios that are unlikely to tax one's self-control resources at all. Confirming this, DeWitt Huberts, Evars and de Ridder (2011) conducted a study to determine whether or not self-control resources would be depleted by a "justification" task, a task used to elicit a licensing effect. In this instance, the justification task was a long but undemanding task, with participants in the experimental group being led to believe that they were randomly picked to perform this task twice. In actuality, the control group performed the same task, but in one ten-minute session as opposed to two five-minute sessions. The Stroop task has been shown to require self-control resources (Webb & Sheeran, 2003) and so it was conducted after the aforementioned justification task to see whether or not the experimental and control groups differed in performance on the Stroop task. If they did, it would suggest that justification tasks reduce self-control, and could be responsible for the licensing effect. Individuals who were led to believe they performed the justification task twice did not experience diminished performance on the Stroop task, suggesting that loss of self-control is not the reason for the licensing effect. The licensing effect itself was later elicited in the main study using the same justification task and experimental condition, showing that the task itself was valid and capable of eliciting a licensing effect.

Although a number of theories regarding the licensing effect have been eliminated, there are still a few plausible theories that may explain why self-licensing

occurs. The main theories used to explain the licensing effect are the “moral credentials,” “moral credits,” & “self-completion” theories (Merritt et al., 2010; Jordan et al., 2011).

The “moral credits” theory, posits that the licensing effect serves as a guilt-reduction mechanism (Khan & Dhar, 2006) with good choices offsetting the guilt that bad choices would normally cause (Merritt et al., 2010). It is known that individuals may experience guilt when buying or consuming luxury items (Lascu, 1991). However, there are ways that individuals may avoid experiencing this guilt. For example, individuals who participate in frequency/loyalty programs are likely to choose a luxury reward over a more utilitarian reward if the effort required to reach the reward is high, as it allows them to justify the choice more easily. They will also feel less guilty about it if they earned their reward through work-related activities (e.g., earning a luxury reward through hotel stays as a result of using hotels for business trips) (Kivetz & Simonson, 2002). It is possible that the licensing effect serves as a guilt-reducing mechanism and operates in a similar fashion, justifying indulgent or immoral choices if one has previously done something that “entitles” them to a reward.

In contrast to the moral credits/guilt reduction theory, the “moral credentials” theory argues that good deeds change the meaning of subsequent behavior, with the good deeds helping to establish oneself as having positive credentials (e.g., being nonracist; Monin & Miller, 2001) thus allowing that person to respond more honestly in the future without consequence (Merritt et al., 2010). This theory is oftentimes used to explain why people act in a biased manner after doing something that establishes them as being nonbiased (e.g., Effron, Cameron & Monin, 2009).



One last possible reason we may self-license is due to our sense of self. Jordan et al. (2011), proponents of self-completion theory, believe that moral and immoral behavior increases or decreases moral tension. In this framework, moral behavior causes us to feel more morally “complete,” and as a result, less concerned with engaging in further moral behavior, while immoral behavior leads to an increase in moral behavior so that we can feel morally complete. Self-completion theory was originally proposed by Wicklund and Gollwitzer (1982; see also Gollitzer & Kirchof, 1998) and was expanded upon by Jordan et al. (2011). It is possible that the justification tasks that lead to self-licensing may make us feel more morally complete, leading us to indulge or act selfishly.

### **Dietary Restraint and Food Choice**

Some individuals restrain their eating in order to maintain or achieve an ideal weight, oftentimes due to social and cultural demands (Herman & Mack, 1975). In the United States, it is estimated that 20-30% of females and 10% of males between the ages of 18-65 are “restrained” eaters (Rand & Cudau, 1991) and therefore are concerned about weight fluctuations and eating sensibly. In line with the above findings that many women are restrained eaters, it has been found that many American women are concerned about their eating habits and appearance. Two-thirds of women have reported that they are concerned about their weight and the food choices they make, and the same percentage of women have reported that they have dieted at least once (Rozin, Bauer & Canatese, 2003). Women also are more conscious about their food choices when compared to men. It has been found that in comparison to men, women are more likely to consume low-fat food products and less likely to consume fast food (Rozin et al., 2003). They are also more likely to eat fruit and high fiber foods, although some of these



differences may be due to the frequency with which women diet in comparison to men (Wardle et al., 2004). Some women may also associate guilt with certain foods; 14% of American women report that they are embarrassed to buy a chocolate bar while shopping at the grocery store (Rozin et al., 2003) and 39% of women associate chocolate cake with guilt, as opposed to celebration (Rozin, Fischler, Imada, Sarubin & Wrzesniewski, 1999). Men are much less likely to make these associations.

Although a significant number of women are considered “restrained eaters” and are attempting to lose weight by restricting caloric intake, they are not always successful, potentially due to occasional excessive eating that nullifies the weight loss gains made from restricted eating (Heatherton, Polivy & Herman, 1991). Studies have found that woman in particular struggle with losing weight and may actually gain weight over time, even if they intend to diet and restrain their caloric intake. One three-year longitudinal study found that dietary restraint was significantly associated with an increase in body mass index (BMI) in females at follow-up (van Strien, Herman & Verheijden, 2014). This suggests that while restrained eaters, particularly those who are female, attempt to restrict their caloric intake and avoid certain foods, they are still apt to make poor food choices at times, a notion that has been supported by various studies. Cools, Schotte and McNally (1992) found that restrained eaters, when shown a horror film designed to increase negative affect, were more likely to overeat while watching the film than nonrestrained eaters were. It has also been found that restrained eaters report being more likely to overeat when stressed than do nonrestrained eaters (Zellner et al., 2006). Previous research suggests that the licensing effect may allow individuals to indulge themselves without guilt. With it being known that restrained eaters are susceptible to

overeating and making poor food choices, it is possible that some of the overeating that restrained eaters engage in could be due to poor food choices brought on through self-licensing.

### **Self-Licensing and Food Choice**

Recent research has shown that the licensing effect interacts with food and food consumption in a number of ways. For example, findings from one study have suggested that rating certain kinds of foods can serve as a justification task, causing participants to self-license afterward. Eskine (2012) performed a study in which participants rated the desirability of certain foods, with participants being randomly assigned to rate the desirability of organic foods, comfort foods (e.g., indulgent items such as ice cream or chocolate), or control foods that were neither organic nor indulgent, such as rice. All participants did was rate the desirability of items they were shown, but this was still enough to cause participants in the organic foods condition to self-license, as they were more likely to make harsh moral judgments of others' immoral behavior following the desirability rating task. These participants were also less likely than individuals in the other groups to subsequently volunteer their time to participate in another professor's research. This suggests that certain foods (such as organics) have some sort of "virtuous" qualities, either due to the way they are produced or their healthiness, and that rating these foods as desirable may make participants feel more moral, resulting in the emergence of the licensing effect.

Individuals may also license themselves to make less virtuous food choices in the present based on the ability to make better food choices in the future. Khan and Dhar (2007, Study 3) found that individuals who were presented with a choice of a "virtuous"

food (healthy, low calorie) or “vice” food (unhealthy, high calorie) were susceptible to making indulgent choices if given the opportunity to make the same choice a week later, showing that individuals would license present behavior based on the ability to make a better decision later on.

Hypothetical scenarios have also shown that individuals may be vulnerable to licensing indulgent food choices based on previous actions. For example, participants who decided to use some of their study compensation money to buy a chocolate bar for charity were more likely to prefer a fruit salad over a chocolate cake in a subsequent hypothetical scenario (Mukhopadhyay & Johar, 2009). Individuals may also license themselves to overeat. DeWitt Huberts et al. (2011) found that participants who were given a justification task, which allowed them to self-license, consumed more snacks in a subsequent “taste evaluation” task, consuming about 26g more (~130 calories) of cookies, chips and candies than individuals who were not given an opportunity to self-license.

Although the studies above have examined the relationship between the licensing effect and food, there are still some gaps in the current literature. For one, no studies have determined whether or not individuals, when forced to make a non-hypothetical choice, will license themselves to make an indulgent, unhealthy food choice over a healthy choice after completing a justification task. The one study that examined the licensing effect and food choice (Mukhopadhyay & Johar, 2009) involved a hypothetical food choice, as opposed to an actual choice. The relationship between dietary restraint, food choice, and the licensing effect has also gone unexamined so far. Past research has shown that individuals who are classified as restrained eaters are vulnerable to making

poor food choices: perhaps the licensing effect is one reason why this occurs. Lastly, if it is found that simply recalling prior good behavior is enough to cause us to license the consumption of unhealthy food, it would show how vulnerable we are to the licensing effect when it comes to making food choices.

### **The Present Study**

In this study, I investigated whether or not individuals will license themselves to choose unhealthy foods over healthy foods after recalling past moral behavior they have performed. Additionally, I looked to see whether or not restrained eaters are more susceptible to indulgence once they are allowed to self-license. I hypothesized that individuals in the experimental condition would be more likely to choose an unhealthy food item as a result of the licensing effect. I also hypothesized that participants classified as restrained eaters would be more likely to self-license than unrestrained eaters.

### **Pilot Study**

To determine which snack items to use for the main experiment, a pilot study was conducted. The goal of the pilot study was to determine which snack items participants would see as healthy or unhealthy.

## **Methods**

### **Participants**

Twenty-one Montclair State University undergraduates (19 females and 2 males) were recruited using MSU's student subject pool. Participants received research credit for participating.

### **Procedures**

Upon arriving, participants completed a short questionnaire. For each item, participants had to rate how healthy they perceived a certain food item to be on a scale of -10 to +10, with -10 being labeled "Very Unhealthy," 0 being labeled "Neither Healthy nor Unhealthy," and +10 being labeled "Very Healthy." There were 19 items in total for participants to rate (see Figure 1).

### **Results**

The results for the pilot study are shown in Figure 2. Two healthy items and two unhealthy items were to be chosen for the main study based on the results of the pilot study. Of these four items, two of them were savory and two of them were sweet, with one of each type being in each health category. Almonds and Clementines were rated as being two of the three most healthy snack items<sup>1</sup> ( $M = 8.38$ ,  $SD = 1.88$  for the Almonds and  $M = 8.76$ ,  $SD = 1.26$  for the clementines) while Oreos and Lays Potato Chips were rated as being two of the most unhealthy foods ( $M = -7.10$ ,  $SD = 2.39$  for Oreos  $M = -6.25$ ,  $SD = 2.75$  for the Lays Potato Chips). As a result, these four items were selected for use in the main study.

### **Main Study**

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<sup>1</sup> Apples were rated by participants as being the most healthy snack item ( $M = 9.33$ ,  $SD = 1.02$ ). However, due to clementines (which were rated as the second-most healthy snack item) having an outer rind that is removed before eating, they were used instead.

With the pilot study revealing which snack items participants saw as healthy or unhealthy, it was now possible to conduct the main study using snack items chosen based on the results of the pilot study. The purpose of this study was to see if participants would license themselves to make an unhealthy food choice after writing about past moral behavior. Also, I wanted to determine whether or not restraint type affected vulnerability to the licensing effect as well.

### **Methods**

#### **Participants**

One-hundred and seventy two Montclair State University female undergraduates ( $M_{\text{age}} = 19.8$  years) were recruited using MSU's student subject pool. Participants received research credit for participating.

#### **Materials**

Data from the pilot study was used to choose the four food items that were to be used in the main experiment. The two healthy items chosen were clementines and a 18 gram, 100-calorie pack of unsalted, natural almonds packaged by Diamond Foods. These food items were natural, were minimally processed and were low in calories (35 calories and 100 calories, respectively). The two unhealthy food items chosen were a 6-pack of Nabisco Oreos and a small 1 oz. bag of Lays Potato Chips. Both of these items were processed food items that were high in calories (270 calories and 160 calories, respectively) and had little nutritional value. These four food items were placed on an oval-shaped plastic white tray that was 18.5 inches long, 14 inches wide and 1.5 inches tall. This tray was located on a table that was six feet from the table that participants sat

at while completing the experiment. There were ten clementines, ten packs of almonds, ten packs of Oreos, and eight bags of chips on the tray. The items are shown in Figure 3.

### **Restraint Scale (RS)**

The Restraint Scale (RS) (Herman & Polivy, 1980) consists of 10 items (see Figure 4) that are scored on a 0-3 or 0-4 scale, along with items that ask about age, height, sex, weight, and maximum weight. Females who score 15 (out of a maximum of 35) or higher on the RS are classified as “restrained” eaters, while those who score 14 or below on the RS are classified as “unrestrained” eaters. The RS is somewhat controversial, as some (e.g., Stice, Fisher & Lowe, 2004) have argued that it does not actually measure dietary restraint. Instead, it has been argued that the RS actually identifies those who intend to diet but are unsuccessful (Van Strien et al., 2007; Johnson, Pratt & Wardle, 2012). However, even if this is the case, the RS still serves as a useful tool for this study, as the goal is to determine whether or not the licensing effect is one reason why restrained eaters struggle to lose weight. The RS has been found to be reliable ( $r = .95$ ; Allison, Kalinsky & Gorman, 1992).

### **Procedures**

Participants were told that they would be participating in two brief experiments that appeared to be unrelated. Participants were told that in the first experiment, they would be asked to write a short essay for a nationwide study that was being done to compare writing styles throughout the country. For the second experiment, participants were told that they were completing a questionnaire about their lifestyle. This deception was utilized in order to prevent participants from potentially figuring out the true purpose of the experiment.



Upon arriving at the laboratory, participants completed the first “experiment.” Participants in the experimental condition were told to write about “a time when you performed an act of kindness,” with the goal of having participants self-license as a result of this task. Participants in the control condition were told to “write a description of the student center on campus” instead, preventing them from having an opportunity to self-license. Participants had five minutes to complete this task, and while they did so, the researcher was in another room in order to give the participant as much privacy as possible. Participants were given no guidelines on how much to write, and if they inquired, they were simply told to write as much as they felt they needed to.

After the first task was complete, participants were told that they could choose a snack from a plate on a nearby table as a reward for completing the first experiment. The snack items on the plate were the four items described above: Almonds, Clementines, Lays Potato Chips and Oreos. Participants were also told by the researcher that he or she would leave the room for a minute or two to get the paperwork for the second experiment, giving participants ample time to choose and put away their snack item, if they chose to do so. After this, participants were given the Restraint Scale and told that for the second experiment, all they had to do was complete the form given to them and then bring it back to the researcher (who was once again in another room) when they were done. Upon completing the RS and bringing it to the researcher, participants were debriefed and dismissed. After participants left the laboratory, the plate of snacks was counted to determine which food item, if any, was chosen.

## **Results**



Of the 172 participants, 41 participants had their data excluded. Thirty-two participants did not choose one of the four available snacks during the experiment, while another nine participants had their data excluded for other reasons, including, prior knowledge of the experiment, missing/incomplete data, RS score being affected by a prior pregnancy, failure to give consent on the debriefing consent form, or the choosing of two or more snacks from different categories (“healthy” or “unhealthy”). If participants chose two items from the same category, (e.g., Lays and Oreos) they were included in that category for analysis. The final analysis consisted of the data of the 131 remaining participants.

There were thirty participants in the experimental condition who were restrained and thirty-seven participants who were unrestrained. In the control condition, thirty-two participants were restrained and thirty-two participants were unrestrained. Restraint scale scores were similar within the “restraint” groups, regardless of task. The mean restraint scale score for restrained participants in the experimental and control groups was 19.07 ( $SD = 3.04$ ) and 18.47 ( $SD = 2.98$ ) respectively, while the mean restraint scale score for unrestrained participants in the experimental and control groups was 8.73 ( $SD = 4.07$ ) and 10.03 ( $SD = 2.92$ ) respectively. T-tests confirmed that the average restraint scale scores for participants in the control and experimental conditions of each restraint category were not significantly different [ $t(67) = 1.505, p = .14$  for the Unrestrained RS comparison,  $t(60) = .781, p = .44$  for the Restrained RS comparison].

Snack choices were tallied for each of the four groups (see Figure 5). Of the restrained eaters in the experimental group, 14 of these participants chose healthy items, while 16 participants chose unhealthy items. In the control group, 19 of the restrained

participants chose healthy items, while 13 chose unhealthy snacks.. Unrestrained participants in the experimental group favored unhealthy snacks, with just 12 participants selecting healthy food items and 25 selecting unhealthy items. 14 of the unrestrained participants in the control condition chose healthy snacks, while 18 participants chose unhealthy food items.

Data was analyzed using a 3-Way Contingency Table on which was performed a log-linear analysis (Agresti, 2002) using Vassar stats (Lowry, 2014). Variable “A” was food choice (healthy or unhealthy), Variable “B” was Restraint Type (restrained or unrestrained) and Variable “C” was condition assignment (experimental group or control group). The three-way interaction (ABC) was not significant ( $G^2(4) = 5.5, p = .23$ ). Collapsing across each of the three variables produced three subsidiary two-way analyses. The two-way interaction between food choice and restraint type (AB) approached significance ( $G^2(1) = 3.2, p = .07$ ) but did not reach significance. The interaction between food choice and condition (AC) was not significant ( $G^2(1) = 2.18, p = .14$ ). The interaction between restraint type and condition (BC) was also not significant ( $G^2(1) = .36, p = .55$ ).

### Discussion

It was hypothesized that the participants in the experimental group, who wrote about past moral behavior, would be more likely to make an unhealthy food choice than those in the control group, who wrote about the campus’s student center. Additionally, it was hypothesized that restrained participants who wrote about moral behavior would be more likely than unrestrained participants who wrote about past moral behavior to make an unhealthy food choice. The results did not support the hypotheses proposed. Although

there was no significant effect of either variable on food choice, the interaction between food choice and moral behavior was trending towards significance ( $p = .14$ ). While the choices between healthy and unhealthy foods was about even for the control writing task, there were more subjects choosing the unhealthy (67%) than healthy snacks (33%) after writing about an act of kindness they performed. The lack of a significant licensing effect might have been the result of the small sample size. Some of the studies that have examined the licensing effect have used larger sample sizes ranging from 150 to 190 participants (e.g., Jordan et al., 2011, Study 3; Mukhopadhyay & Johar, 2009, Study 4). The study's sample size ( $N = 131$ ) may have been too small, resulting in low power.

In addition to a potential lack of power, the justification task used in this experiment (recalling and writing about prior behavior) may have also played a role in our results, as participants' responses to the task varied greatly. Some participants wrote about behavior that was moral, but was not particularly noteworthy (e.g., letting someone at an intersection go first). It is likely that one's behaviors must reach a certain threshold of "moralness" before one can self-license as a result of that behavior. If some participants did not recall and write about behavior that was moral enough, they may not have experienced a licensing effect, which would impact their subsequent food choice and the results of the study in an unintended manner. Future studies may want to utilize justification tasks that produce consistent effects every time, regardless of the participant, or may want to have coders rate the quality/morality of justification task responses so that more detailed statistical analyses can be done.

What is clear is that there is no effect of restraint on the licensing effect.

However, it appears that there is, not surprisingly, an effect of restraint on choice of food.

Restrained participants were more likely to choose healthy food items than were unrestrained participants. Fifty-three percent of restrained participants chose healthy food items, while just 38% of unrestrained participants did the same. The interaction between food choice and restraint almost reached significance ( $p = .07$ ), suggesting that restrained eaters were more likely to make a healthy food choice than unrestrained eaters were, regardless of which experimental condition they were assigned to.

Another unforeseen problem in this study was that a number of participants ( $n = 32$ ) did not choose a snack item. The snack items were free, were well-known and popular snack items, and could be taken and consumed later if desired. As a result, it was expected that the vast majority of participants would take a snack item. However, about 19% of participants did not choose an item. One could argue that participants who did not choose a snack item should be classified as making a “healthy” choice and included in the final analysis since they chose to not pick anything and did not consume any potentially unnecessary calories as a result. However, there are a number of reasons why participants may not have chosen an item (e.g., extreme neophobia, lack of appetite, desire to complete the experiment as quickly as possible, etc.). With it not being known why each individual participant who did not pick a food item chose to do so, participants who did not choose a food item were not included in the final analysis.

Despite the lack of significant results in this study, the licensing effect is a phenomenon that deserves further investigation. How it interacts with food choice and food consumption is also an area that could still be promising. Future studies, if designed differently, may find that the licensing effect affects food choices by encouraging the consumption of unhealthy, higher calorie foods over unhealthy, low calorie foods. Also,

with previous research finding that the recall of immoral behavior led to stronger prosocial intentions (Jordan et al., 2011), it would be interesting to look into whether or not performing or recalling immoral behavior causes one to subsequently make healthy food choices. This is assuming that it is found that moral behavior results in the consumption of unhealthy foods in future research. Such a study may reveal whether or not food choices are seen as “moral” or “immoral” choices by humans.

Additionally, there are still a number of aspects of the licensing effect that could be investigated further. We are still unsure why the effect occurs, for example. As discussed previously, there are various theories as to why the licensing effect occurs, but there is no definitive answer yet as to why exactly we self-license. Additionally, it is not known whether or not certain individuals are more vulnerable to the licensing effect than are others. The present study attempted to discover whether or not restrained eaters were more vulnerable to the licensing effect than normal. Although the results suggested that restrained eaters were no more vulnerable to the licensing effect than unrestrained eaters, it is still possible that certain individuals are more susceptible to the licensing effect than others are. Not everyone who performs a moral action decides to self-license and do something immoral or indulgent afterward, and so some individuals may be more likely to self-license for some reason. Finding a way to attenuate the licensing effect may also be useful, as the effect often leads to immoral or indulgent behavior. Finding a way to reduce or eliminate the effect may help to reduce unwanted, undesirable behaviors that are performed after self-licensing occurs.

Lastly, further research may want to investigate whether or not people utilize one justification task multiple times when justifying indulgent or immoral behavior. If the

average person is capable of self-licensing by recalling past moral behavior (Jordan et al., 2011) it is possible that individuals may justify multiple instances of indulgent or immoral behavior using one instance of a good behavior.

### **Conclusion**

This study attempted to determine whether or not the licensing effect impacted food choice, and whether or not restrained eaters were more vulnerable to the effect than others. Although no licensing effect was found there are still a number of insights that can be gathered from this study for use in future experiments, and there are still many potential avenues for future research in this area.

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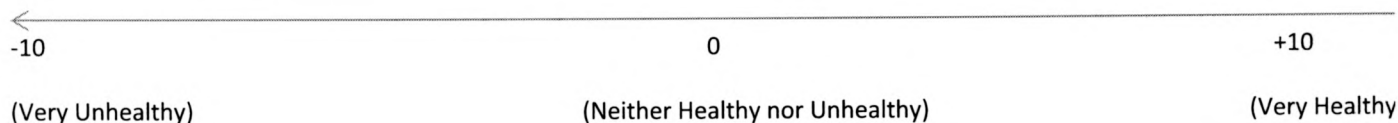
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For each food item, ask yourself "How healthy is this food?" Rate each food item based on how healthy you perceive it to be (-10 = "Very Unhealthy, 10 = "Very Healthy") using the scale below. Write your rating (number) on the line next to the food.

Example:



Oreo Cookie _____	Pack of Almonds _____
Freeze-Dried Fruit Crisps _____	Chocolate Chip Cookie _____
Cheez-Its _____	Fig Newtons _____
Blueberry Cereal Bar _____	Clementine _____
Lays Original Potato Chips _____	Pita Chips _____
Hershey's Chocolate Bar _____	Pringles Original Flavor _____
Snickers Candy Bar _____	Apple _____
Veggie Crisps Potato Chips _____	Doritos Nacho Flavor _____
Reese's Peanut Butter Cup _____	Wheat Crackers _____
Granola Bar _____	

Figure 1. Questionnaire used for the pilot study.

Report			
	Mean	N	Std. Deviation
Oreo	-7.0952	21	2.38547
FruitCrisps	2.5714	21	3.26453
Cheezits	-3.0476	21	3.65344
CerealBar	3.2857	21	2.43193
LaysChips	-6.2500	20	2.75060
HersheysBar	-4.8571	21	3.36579
SnickersBar	-6.8095	21	3.02686
VeggieCrisps	1.5238	21	4.29673
ReesesCup	-6.0476	21	3.16980
GranolaBar	5.0952	21	2.34318
Almonds	8.3810	21	1.88351
ChocChipCookie	-4.4286	21	4.68584
FigNewtons	2.7619	21	4.06085
Clementine	8.7619	21	1.26114
PitaChip	2.9048	21	3.76702
Pringles	-4.9524	21	2.61680
Apple	9.3333	21	1.01653
Doritos	-6.5714	21	2.42015
WheatCrackers	4.7619	21	2.82674

Figure 2. Results of the pilot study.



*Figure 3.* Picture of the tray of snacks used for the main experiment.

**Eating Habits Questionnaire**

The following questions refer to your normal eating pattern and weight fluctuations. Please answer accordingly.

Age \_\_\_\_\_ Height \_\_\_\_\_ Sex \_\_\_\_\_ Weight \_\_\_\_\_

1. How often are you dieting? (circle one)

Never      Rarely      Sometimes      Usually      Always

2. What is the maximum amount of weight (in pounds) you have ever lost in one month? (Circle one)

0-4      5-9      10-14      15-19      20+

3. What is your maximum weight gain within a week? (Circle one)

0-1      1.1-2      2.1-3      3.1-5      5.1+

4. In a typical week, how much does your weight fluctuate? (Circle one)

0-1      1.1-2      2.1-3      3.1-5      5.1+

5. Would a weight fluctuation of 5 lbs. affect the way you live your life? (Circle one)

Not at all      Slightly      Moderately      Very much

6. Do you eat sensibly in front of others and splurge alone? (Circle one)

Never      Rarely      Often      Always

7. Do you give too much time and thought to food? (Circle one)

Never      Rarely      Often      Always

8. Do you have feelings of guilt after overeating? (Circle one)

Never      Rarely      Often      Always

9. How conscious are you of what you're eating? (Circle one)

Not at all      Slightly      Moderately      Very much

10. What is your maximum weight ever? \_\_\_\_\_

11. How many pounds over your desired weight were you at your maximum weight? (Circle one)

0-1      1-5      6-10      11-20      21+

*Figure 4.* The Restraint Scale (RS)/Eating Habits Questionnaire.

Restraint Type	Experimental Condition		Control Condition	
	Healthy	Unhealthy	Healthy	Unhealthy
Restrained	14	16	19	13
Unrestrained	12	25	14	18

*Figure 5.* Food choices (healthy or unhealthy) made by participants in each group.